Claims (amended)

1. A method for diagnosing or prognosing Alzheimer's disease in a subject, or determining whether a subject is at increased risk of developing Alzheimer's disease, comprising:

determining a level, or an activity, or both said level and said activity, of nerve growth factor in a sample taken from cerebrospinal fluid of said subject;

and comparing said level, or said activity, or both said level and said activity, to a reference value representing a known disease or health status,

wherein an increase in said level, or a varied activity, or both said increase in said level and said varied activity, of nerve growth factor in said cerebrospinal fluid from said subject relative to said reference value representing a known health status indicates a diagnosis, or prognosis, or increased risk of said Alzheimer's disease in said subject.

2. A method of monitoring progression of Alzheimer's disease in a subject, comprising:

determining a level, or an activity, or both said level and said activity, of nerve growth factor in a sample taken from cerebrospinal fluid of said subject;

and comparing said level, or said activity, or both said level and said activity, to a reference value representing a known disease or health status,

wherein an increase in said level, or a varied activity, or both said increase in said level and said varied activity, of nerve growth factor in said cerebrospinal fluid from said subject relative to said reference value representing a known health status indicates a diagnosis, or prognosis, or increased risk of said Alzheimer's disease in said subject.

3. Use of the method according to claims 1 or 2 for evaluating a treatment for Alzheimer's disease.

4. The method according to any of claims 1 to 3, wherein a level of nerve growth factor ≥ 4 pg/ml in said cerebrospinal fluid indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

5. The method according to claim 4, wherein a level of nerve growth factor in the range from 4 pg/ml to 25 pg/ml, in particular in the range from 4 pg/ml to 14 pg/ml, in said cerebrospinal fluid indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

6. The method according to any of claims 1 to 5, wherein said subject is a human.

7. The method according to any of claims 1 to 6, wherein nerve growth factor is detected using an immunoassay, bioassay and/or binding assay.

8. The method according to any of claims 1 to 7, further comprising comparing a level and/or an activity of nerve growth factor in said sample with a level and/or an activity in a series of samples taken from said subject over a period of time.

9. The method according to any of claims 1 to 8, wherein said subject receives a treatment prior to one or more of said sample gatherings.

10. The method according to any of claims 1 to 9, wherein said level and/or activity in said samples is determined before and after said treatment of said subject.

11. The method according to any of claims 1 to 10, further comprising:

determining a level, or an activity, or both said level and said activity, of a further neurotrophin in a sample taken from cerebrospinal fluid of said subject;

and comparing said level, or said activity, or both said level and said activity, to a reference value representing a known disease or health status;

wherein a varied level, or activity, or both said level and said activity, of said further neurotrophin in said cerebrospinal fluid from said subject relative to said reference value representing a known health status

indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

12. The method according to claim 11 wherein said neurotrophin is neurotrophin-3.

13. The method according to claim 12 wherein a level of neurotrophin-3 ≥ 15 pg/ml in said cerebrospinal fluid indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

14. A kit for diagnosis, prognosis, or determination of increased risk of developing Alzheimer's disease in a subject, said kit comprising:

(a) at least one reagent which selectively detects nerve growth factor; and

(b) instructions for diagnosing, or prognosing Alzheimer's disease, or determining increased risk of developing Alzheimer's disease by

(i) detecting a level, or an activity, or both said level and said activity, of nerve growth factor in a sample taken from cerebrospinal fluid of said subject; and

(ii) diagnosing, or prognosing, or determining whether said subject is at increased risk of developing Alzheimer's disease,

wherein an increase in said level, or a varied activity, or both said increase in said level and said varied activity, of nerve growth factor compared to a reference value representing a known health status;

or a level, or an activity, or both said level and said activity, of nerve growth factor similar or equal to a reference value representing a known disease status indicates a diagnosis, or prognosis, or increased risk of developing Alzheimer's disease.

15. The kit according to claim 14 wherein a level of nerve growth factor ≥ 4 pg/ml in said cerebrospinal fluid indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

16. The kit according to claim 15 wherein a level of nerve growth factor in the range from 4 pg/ml to 25 pg/ml, in particular in the range from 4 pg/ml to 14 pg/ml, in said cerebrospinal fluid indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

17. The kit according to any of claims 14 to 16 further comprising:

(a) at least one reagent which selectively detects a further neurotrophin; and

(b) instructions for diagnosing, or prognosing Alzheimer's disease, or determining increased risk of developing Alzheimer's disease by

(i) detecting a level, or an activity, or both said level and said activity, of said further neurotrophin in a sample taken from cerebrospinal fluid of said subject; and

(ii) diagnosing, or prognosing, or determining whether said subject is at increased risk of developing Alzheimer's disease,

wherein a varied level or activity, or both said level and said activity, of said further neurotrophin compared to a reference value representing a known health status,

or a level, or an activity, or both said level and said activity, of said further neurotrophin similar or equal to a reference value representing a known disease status

indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

18. The kit according to claim 17 wherein said neurotrophin is neurotrophin-3.

19. The kit according to claim 18 wherein a level of neurotrophin-3 $\geq$ 15 pg/ml in said cerebrospinal fluid indicates a diagnosis, or prognosis, or increased risk of Alzheimer's disease in said subject.

20. The kit according to any of claims 14 to 19 for use in monitoring a progression of Alzheimer's disease in a subject.

21. The kit according to any of claims 14 to 19 for use in monitoring the success or failure of a therapeutic treatment of a subject.

22. A method of treating or preventing Alzheimer's disease in a subject comprising administering to said subject in a therapeutically effective

amount an agent or agents which directly or indirectly affect an activity, or level, or both said activity and level, of at least one substance which is selected from the group consisting of a gene coding for nerve growth factor, a transcription product of a gene coding for nerve growth factor, and nerve growth factor.

23. Use of an agent for the manufacture of a medicament for treating Alzheimer's disease, wherein said agent directly or indirectly affects an activity, or level, or both said activity and level, of at least one substance which is selected from the group consisting of a gene coding for nerve growth factor, a transcription product of a gene coding for nerve growth factor, and nerve growth factor.

24. A method for identifying an agent that directly or indirectly affects an activity, or level, or both said activity and level, of at least one substance which is selected from the group consisting of a gene coding for nerve growth factor, a transcription product of a gene coding for nerve growth factor, and nerve growth factor, comprising the steps of:

(a) providing a sample containing at least one substance which is selected from the group consisting of a gene coding for nerve growth factor, a transcription product of a gene coding for nerve growth factor, and nerve growth factor;

(b) contacting said sample with at least one agent;

(c) comparing an activity, or level, or both said activity and level, of at least one of said substances before and after said contacting.

25. A composition for use as a medicament comprising (i) a first agent which directly or indirectly affects an activity, or level, or both said activity and level, of at least one substance which is selected from the group consisting of a gene coding for nerve growth factor, a transcription product of a gene coding for nerve growth factor, and nerve growth factor and (ii) a second agent which directly or indirectly affects an activity, or level, or both said activity and level, of at least one substance which is selected from the group consisting of a gene coding for a further neurotrophin, a transcription product of a gene coding for a further neurotrophin and a further neurotrophin.

26. A composition according to claim 25 wherein said further neurotrophin is neurotrophin-3.